POLICY CREDIBILITY

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Abstract

In this paper, using the models from the economic literature, the authors study the credibility level of National Bank of Romania (NRB) during the time span Mars 2007 – Mars 2008. We will use three types of credibility indexes - two from the economic literature and one proposed by the authors. Also, we will emphasize the impact of unpredictable shocks - the natural calamities (drought) which affected the aggregate supply in the summer of 2007 and the depreciation of RON against the euro - on the NBR credibility.

Key words: credibility, monetary policy, inflation expectations

1. Monetary policy credibility in the economic literature

Blinder (1999) defines credibility as "words matching deeds. A central bank is credible if people believe it will do what it says". [Svensson, L.E.O. (1999), p. 23]. The correspondence between inflation target and private inflation expectations shows high level of credibility, while the deviations of private inflation expectations from the inflation target indicates a lack of credibility (both when inflation expectations are above and below the target). Cukierman and Meltzer (1986) define credibility as "the absolute value of the difference between policymakers' plans and the public's beliefs about those plans" [Lyziak, T.; Mackiewicz, J.; Stanislawska, E. (2005), p. 4]. They believe the level of credibility influence the speed with which the public learns about changes in policymakers' objectives. When the society reacts slowly to changes in the objectives of the monetary policy they assume that central bank has a lower level of credibility.

Most of the central banks are obsessed by their credibility. Knowing the benefits of a credible monetary policy we understand and sustain their obsession for being credible. Svensson identifies the advantages of a credible central bank [Svensson, L.E.O. (1999), p. 25]:

- a high level of credibility reduce the variability of the real economic variables (output and output gap). As a consequence, there is less need for the central bank interventions' in the real activity in order to keep inflation close to target. So, the central bank can easily achieve its target;
- the impact of nominal interest rate on the real interest rate is more stable and predictable. According to Fischer equation, when inflation expectations are stable and close to target, the only factor that influence the real interest rate is the nominal interest rate;
- avoid the liquidity trap – a situation whit a major surplus of liquidity in economy and nominal interest rates very close to zero. In this situation, the real interest rate has an opposite evolution from the inflation expectations level: when the real interest rate is positive – the inflation expectations are negative, that means the society expects to occur a deflation phenomenon. In this circumstance the monetary policy effects are very weak and the central bank can't control the economy throughout the interest rate channel.
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- Although is easy to define, the central bank credibility is difficult to measure. Due to this aspect, in the economic literature we do not have a commonly accepted index to measure the

level of central bank monetary policy credibility. The existing indexes measure the gap between the inflation expectations and monetary policy target. We will present two of these methods.

Lyziak, Mackiewicz şi Stanislawska (2005, p. 5) consider that the level of credibility can be measured as a difference between the private inflation expectations and the inflation target:

$$IC1 = \left| \pi^{e}_{t+1/t} - \pi^{target}_{t+1} \right| \quad (1)$$

where: IC1 – level of credibility at the moment t, $\pi^{e}_{t+1/t}$ - the private inflation expectations for the period t+1, π^{target}_{t+1} - the inflation target for the period t+1. The method does not make difference between the positive and the negative deviations of inflation expectations. Moreover, due to the fact that results are expressed in percentages, we believe that the obtained values do not clearly reflect the level of central bank credibility.

To increase the results relevance, we compare the value obtained for IC1 with the inflation target. For example, a 3% difference between expectations and target may illustrate a high level of confidence if the target is 15%, but, in the same time, it may illustrate a low level of confidence if the target is 2%. As a consequence, we consider appropriate to adjust the formula (1) as it follows:

$$IC1_{adjusted} = \begin{cases} 1 - \dfrac{\left| \pi^{e} - \pi^{target} \right|}{\pi^{tinta}}, \text{ if } \left| \pi^{e} - \pi^{target} \right| < \pi^{target} \\ 0, \text{ if } \left| \pi^{e} - \pi^{target} \right| > \pi^{target} \end{cases} \quad (2)$$

where: π^{e} – the private inflation expectations and π^{target} – the inflation target. The result will fall between 0 – that means a very weak level of credibility – and 1 – that represents the maximum level of credibility.

In order to eliminate the weaknesses of the formula (1), Cecchetti and Krause use another index. They consider that a lower level for private inflations expectations than the inflation target does not affect the central bank credibility. Their index is calculated according to formula (3):

$$IC2 = \begin{cases} 1, \text{ if } \pi^{e} \le \pi^{target} \\ 1 - \dfrac{1}{0.2 - \pi^{target}} \left(\pi^{e} - \pi^{target} \right), \text{ if } \pi^{target} < \pi^{e} < 20\% \\ 0, \text{ if } \pi^{e} \ge 20\% \end{cases} \quad (3)$$

where: π^{e} – the private inflation expectations and π^{target} – the inflation target. If the result is close to 1 the level of credibility is high. Moreover, they consider a level of private inflation expectations grater that 20% similar with the absence of central bank credibility. When the society expects a level of inflation lower than the target they consider the level of credibility for the central bank as being maxim.

2. Method and results

Using the methods presented previously, we will evaluate the National Bank of Romania (NBR) level of credibility. NBR adopted inflation targeting as monetary policy in august 2005 and, from that moment on, our central bank announced its targets. At the beginning the targets were established for the next 6 trimesters, while now are announced for the next 8 trimesters. We evaluated the level of inflation expectations using a questionnaire. In order to determine the evolution of inflation expectations of the people from Transylvania, the authors applied the questionnaire during the time span Mars 2007 – February 2008. Regarding the private inflation expectations, we collected two types of data: the first category refers to the level of expected inflation rate at the end of 2007 and the second category refers to the level of expected inflation rate for the following 12 months from the moment of answer. In consequence, we will take into consideration two inflation targets: firstly, the target announced by NBR for the end of 2007 and secondly the target announced for 2008 and 2009.

Firstly we will evaluate the NBR credibility regarding the achievement of the inflation target at the end of 2007. The expected level of inflation rate is evaluated using the results obtained at the following question: *According to your estimations, the inflation rate at the end of the current year will fall between: <0% / 0 – 0.9% / 1 – 1.9% / ... / 9 – 9.9% / > 10%.* In the quantification process we took the central value of each interval as being the representative value. In the case of <0% and >10%, we consider as representative values -0.5% and 10.5%. Their frequencies being very low, these two values did not have a relevant influence on the final result. We analyzed this aspect also in January 2008, due to the fact that NBR did not announce the inflation rate for 2007. Starting from these assumptions and applying the formula (1), we obtained the results represented in *figure 1*:

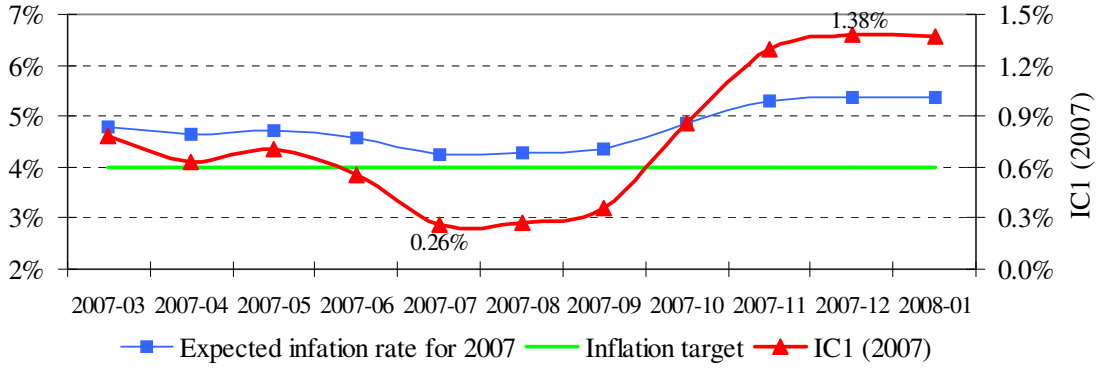

Figure 1 – Evolution of IC1 regarding inflation rate at the end of 2007

Source: authors' calculation and NBR

As we can see from *figure 1*, until July 2007, NBR credibility rise – the value of IC1 become closer to 0. The natural calamities that affected the agriculture during the summer raise the population's inflation expectations, starting the decline of NBR credibility. The RON depreciation against the euro (more accentuated from September 2007) accentuated the inflation expectations raise, sustaining the loss of NBR credibility.

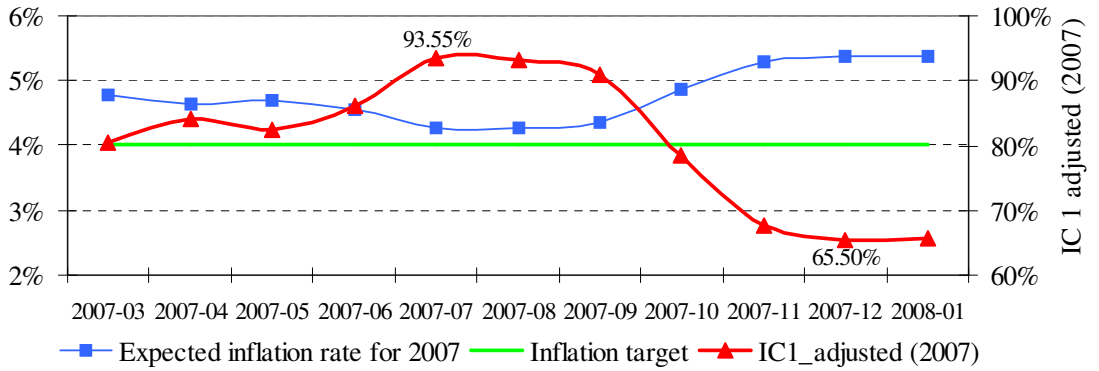

Figure 2 - Evolution of $IC1_{adjusted}$ regarding inflation rate at the end of 2007

Source: authors' calculation and NBR

Analyzing the evolution of $IC1_{adjusted}$ we can draw other conclusions. Looking at the *figure 2*, we can observe that, as a result of not fulfilling its inflation target, NBR loosed appreciatively 30% from the credibility that our central bank had at the middle of year 2007. In spite of the fact that NBR intensified its communications with the society - explaining that the causes of the target fail were not its fault - the private inflation expectations could not be maintained low. As a result, at the end of 2007 the private inflation expectations of population were high.

The evolution of IC2 – created by Cecchetti and Krause - is similar with the evolution of the previous two indexes, confirming that a stable economic environment, without major unpredictable shocks, lead to an increase in the NBR credibility, while the lags between the NBR reaction to these shocks and the appearance of the decisions' effects in economy will inevitably elevate the level of inflation expectations and decrease the central bank credibility. We have to mention that these lags are inevitable. While the

shocks that hit our economy were unpredictable, the NBR could not react previously (before their manifestation). Although NBR reacted promptly, the effects of its monetary policy decisions will be seen only after a few months (at least 6 months), period of time during which the inflation expectations are raising consistently. In the *figure 3* we present the result obtained:

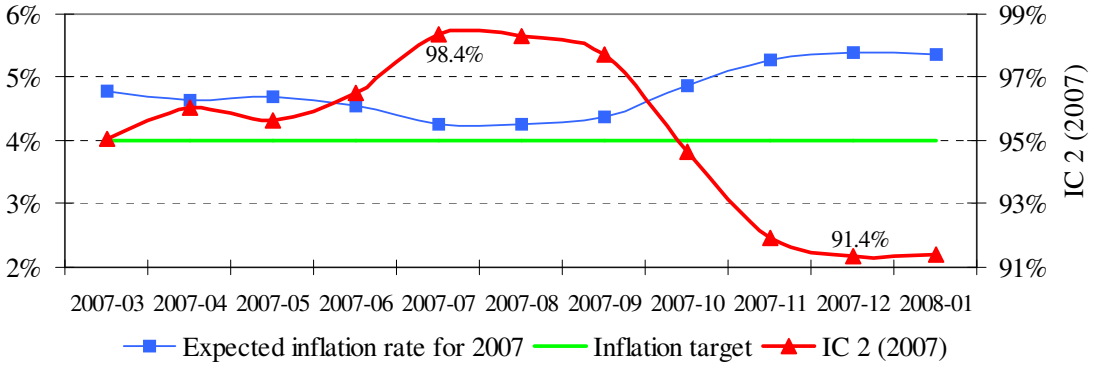

Figure 3 - Evolution of IC2 regarding inflation rate at the end of 2007

Source: authors' calculation and NBR

Now we will evaluate the NBR credibility using the probability method developed by Carlson and Parkin (1975) to estimate the inflation expectations. The data collected from the questionnaire allowed us to estimate the expected inflation rate for the period Mars 2008 – Mars 2009. In order to gather the necessary date, we used the following question: *By comparison with the past 12 months, do you expect that the consumer price will: increase more rapidly / increase at the same rate / increase at a slower rate / stay about the same / fall.*

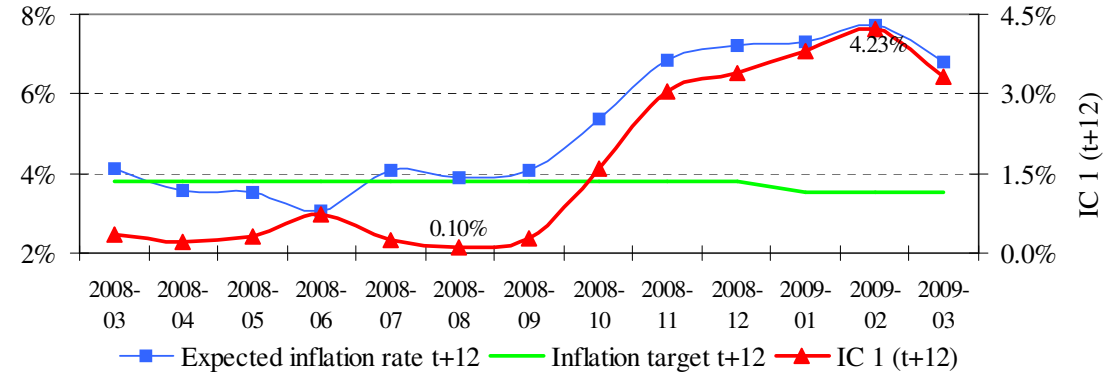

Figure 4 - Evolution of IC1 regarding inflation rate for the next 12 months (t+12)

Source: authors' calculation and NBR

As we can see in *figure 4*, when our economy was stable and inflation was falling (until June 2007), the credibility of NBR was very high: the private inflation expectations for the following 12 months (from the moment of the answer to questionnaire) were even lower than the inflation target announced by NBR (during months April, May and June 2007). The natural calamities from the 2007 summer raised a little the private expectation for the next 12 months, but the expected inflation rate remained very close to the target. The penury of agricultural products and the RON depreciation against the euro, raised the prices of imported vegetables and fruits, having a very consistent influence on the inflation rate. In fact, all other imported goods determined the raise of consumer prices, but the price of fruits and vegetables had the biggest effect on inflation.

The evolution of $IC1_{adjusted}$ reveals the same conclusions as IC1. Additionally, this credibility index shows a great loss of credibility for the NBR: at the beginning of 2008, the population confidence in inflation target achievement for this year was very low. More than that, in the first months of 2008, the differences between the expected inflation rate for the next 12 moths and the corresponding inflation target was grater that the target level. As a consequence, the value of $IC1_{adjusted}$ will be zero. In *figure 5* we represented the results obtained for NBR credibility in the following 12 months:

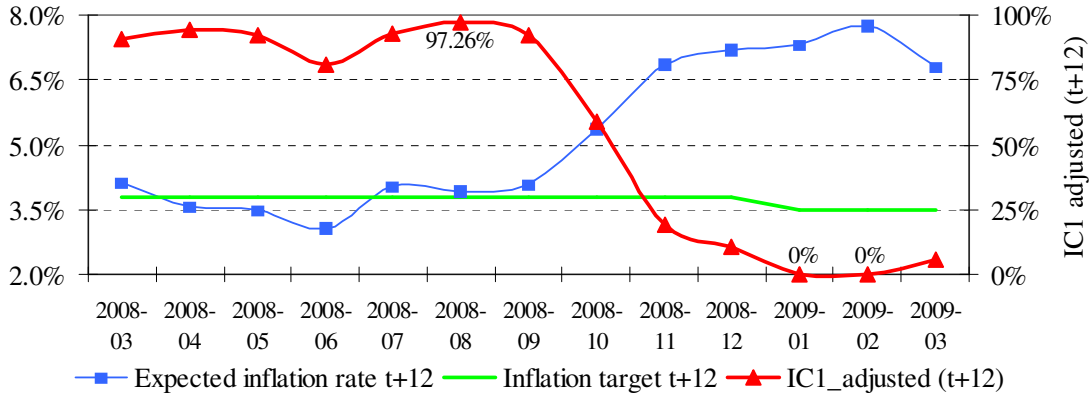

Figure 5 - Evolution of $IC1_{adjusted}$ regarding inflation rate for the next 12 months (t+12)

Source: authors' calculation and NBR

Analyzing the evolution of IC2 we obtain the same results as in the case of previous credibility indexes. For the time span April – June 2008 the level of expected inflation is lower than the inflation target, NBR having a maximum level of credibility (100%). The lowest level of credibility is attained in February 2008, where the difference between the expected inflation rate for the next 12 months and the corresponding inflation target register the greatest value.

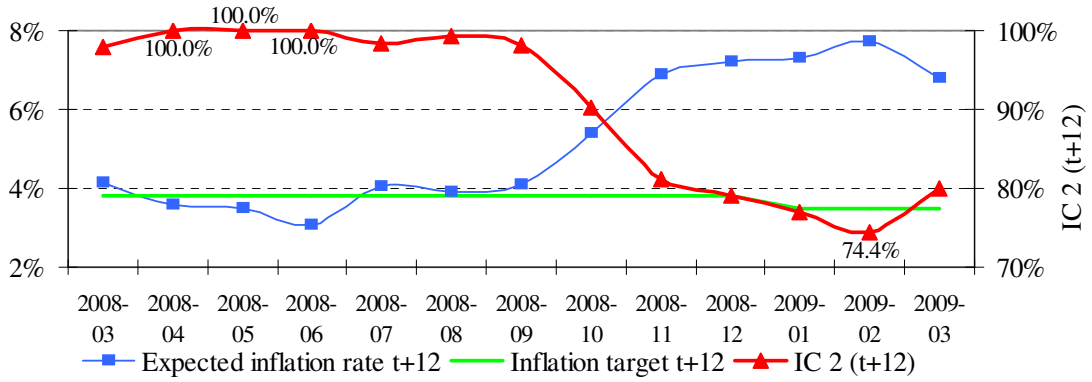

Figure 6 - Evolution of IC2 regarding inflation rate for the next 12 months (t+12)

Source: authors' calculation and NBR

3. Conclusions

Analyzing the results obtained, we consider that the society has an adaptive behavior in the formation of its inflation expectations. That means, people form their expectations about what will happen in the future with inflation based on what happened in the past. Although the communication actions of NBR were intensive – explaining the factors that raised the inflation pressures in our economy – NBR could not stop the loss of credibility. Moreover, the release of predictions regarding the future evolution of inflation could not attenuate the NBR loss of credibility. As a result, we consider that, at this moment, society is more influenced by the current evolution of inflation than by the actions took by NBR in order to calm down the inflation pressures.

In our opinion, the time span from the inflation targeting adoption and the summer of 2007 was too short to facilitate a credibility gain as the result of this monetary policy implementation. The NBR previous successes in its fight against inflation – the consolidation of disinflation process and the RON appreciation against the euro – were the main causes of the NBR credibility until the summer of 2007. Unfortunately, these two reasons were not enough in order to attenuate the negative effects of the first major shock that hit our economy after the inflation targeting adoption.

We think that the negative shock suffered by the aggregate supply in 2007 represented the first true test for the credibility of society in NBR capacity to control the evolution of inflation. Neither the current high

level of transparency nor the existent credibility could anchor the private inflation expectations. As a consequence we believe that NBR failed the credibility test. Additionally, we can see that a high level of transparency is not enough to maintain the central bank credibility. Considering that our economy is in the first years of inflation targeting monetary policy, NBR have to obtain remarkable results in its fight against inflation – reduction and stability of inflation rate – in order to anchor the future inflation expectations. Furthermore, to ameliorate the society adaptive behavior, NBR need to raise the society's information and knowledge level regarding inflation phenomenon.

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